i-FoRST

Info from Faculty of Resource Science and Technology

UNIVERSITI MALAYSIA SARAWAK
UNIMAS

SPECIAL ISSUE

- Graduation Day
- Welcoming New Students

ISSN 2289-5280

EDITORIAL BOARD

Advisors
•*Assoc Prof Dr Mohd Hasnain Mohd Hussain*
•*Assoc Prof Dr Hairul Azman @ Amir Hamzah Roslan*

Chief Editor
•*Prof Dr Kopli Bujang*

Deputy Chief Editor
•*Assoc Prof Dr Ling Teck Yee*

Editors
•*Assoc Prof Dr Othman Bojo*
•*Dr Aida Shafrena Ahmad Puad*
•*Dr Mohd Azlan Jayasilan Gulam Azad*
•*Dr Ho Wei Seng*
•*Amira Satirawaty Mohd Pauzan*
•*Fadly Faizal Rakawi*

Graphic Designer
•*Mohd Hishamuddin Wang*
•*Siti Hajar Abu Bakar*
•*Dabif Jack Shaw*

Photographer
•*Azaha Omar*

MESSAGE FROM THE DEAN

Congratulations to the editorial board for the publication of our renewed faculty bulletin carrying the new name of i-FoRST, in conjunction with the 17th UNIMAS convocation. This year we celebrated 21st year of UNIMAS existence. As the pioneering faculty, we are proud to have 2 PhD, 26 MSc and 289 BSc students from the five degree programmes in Faculty of Resource Science and Technology graduating during this convocation. This is the time to reflect and celebrate the hard work by deserving graduates. Special thanks to all supervisors, lecturers and all staff of FRST for their immense contribution who collectively guided our deserving graduates to achieve their goals and ambitions.

I hope this will not be their last encounter with tertiary education because at FRST, we provide great opportunity for everyone to further their education at graduate level. Various research programmes are offered to suit the interests of potential graduate students.

In addition to the graduation of our students, FRST welcomed a new batch of undergraduate students into various programmes. With the intake of nearly six hundred new students, population of FRST is now over 2000 students. This provides challenges in various ways, not only to the students, but to the administrators and lecturers as well. It is hoped these challenges be dealt with in a positive manner and together we will achieve greater heights as envisioned in UNIMAS Vision and Mission.

Congratulations to all!

Assoc Prof Dr Mohd Hasnain Mohd Hussain

In this issue of i-FoRST....the magazine of our faculty

GRADUATION DAY!!!

17th Convocation of UNIMAS

A total of 289 students have completed their studies at the Faculty of Resource Science & Technology (FRST) and they will be receiving their scrolls at the 3rd Session of 17th Convocation of Universiti Malaysia Sarawak (UNIMAS) which will take place on 10th November, 2013 at Dewan Tunku Abdul Rahman Putra (DeTAR Putra).

No	Programme	Total of Students Graduate
1	Resource Biotechnology	111
2	Resource Chemistry	52
3	Aquatic Resource Science & Management	29
4	Plant Resource Science & Management	53
5	Animal Resource Science & Management	44

16 HISTORIC GRADUATION CEREMONIES

The historic year of 1997 witnessed the pioneering batch of graduates receiving their degrees at the first convocation of this University. A glittering ceremony was held on 9th August 1997 at the Banquet Hall of the State Legislature Building. Among the graduates, 40 students were from the Faculty of Resource Science and Technology.

A total of 2565 students have graduated from FRST since the first convocation.

Year		Resource Biotechnology	Resource Chemistry	Aquatic Resource Science & Management	Plant Resource Science & Management	Animal Resource Science & Management	Total
1	1997	10	11	9	5	5	40
2	1998	20	27	6	7	17	77
3	1999	16	17	0	0	7	40
4	2000	34	30	0	0	2	66
5	2001	36	19	0	0	9	64
6	2002	37	18	6	8	14	83
7	2003	41	26	7	3	15	92
8	2004	30	26	18	11	38	123
9	2005	49	41	19	25	42	177
10	2006	46	43	19	18	30	156
11	2007	71	60	28	41	45	245
12	2008	62	61	41	42	60	266
13	2009	74	59	36	34	41	244
14	2010	126	59	40	21	37	283
15	2011	87	75	37	38	50	287
16	2012	110	70	40	38	65	323
Total by Programme		477	642	306	291	477	2565

In addition, a total of 106 students from Resource Biology Programme, 4 students from the Chemistry Programme and 76 students from Education (Biology) Programme have also graduated from FRST. Those three programmes are no longer offered by FRST.

GRADUATION DAY!!!

Royal Education Award

Royal Education Award is a major academic award presented to a Bachelor's Degree graduate who not only excels in academic studies but also participates actively in co-curricular activities. The award was introduced in the first UNIMAS Convocation.

Year	Name	Programme
1997	Mustaffa Kamal Haji Shamsudin	Plant Resource Science & Management
1998	Bong Vui Poh	Resource Chemistry
	Mazilah @ Hasnah Mukhtar	Resource Biotechnology
2001	Lee Kui Soon	Resource Biotechnology
	Ahmad Zaki Husen	Resource Biology
2003	Suraiya Hj Muhamad	Chemistry
2005	Freddy Yeo Kuok San	Plant Resource Science & Management
2008	Dyg Norafizan Awg Chee @ Awan	Resource Chemistry
2012	Norsyafikah Asyilla bt Nordin	Resource Chemistry

Chancellor Award

Chancellor Award is a major academic award presented to a Bachelor's Degree graduate who not only excels in academic studies but also participates actively in co-curricular activities and shows leadership capabilities. This award was introduced in the first UNIMAS Convocation.

Year	Name	Programme
1997	Asiah Yusof	Aquatic Resource Science & Management
2002	Aazani Mujahid	Aquatic Resource Science & Management

Pro Chancellor

The Pro Chancellor Award was first introduced in the 8th UNIMAS Convocation on 14th -15th August 2005. Miss Maya Asyikin Mohd Arif from Resource Chemistry Programme of FRST was the second student to receive this prestigious award.

Year	Name	Programme
2005	Maya Asyikin Mohd Arif	Resource Chemistry
2009	Amsal bt Abdul Ghani	Resource Biotechnology
2012	Sultana Parvin bt Habeebur Rahman	Resource Biotechnology

GRADUATION DAY!!!

Senate Special Award

The Senate Special Award was first introduced in the 11th UNIMAS Convocation on 4th-5th August 2013. Winners of this award were FRST students, Lee Mee Chea (Plant Resource Science & Management Programme) and Su Shei Sia (Resource Chemistry Programme).

Year	Name	Programme
2007	Lee Mee Chea	Plant Resource Science & Management
	Su Shei Sia	Resource Chemistry
2008	Willy Chin Siaw Min	Animal Resource Science & Management
2009	Nickson Chong Fatt Ming	Resource Biotechnology
2010	Eliane Choo Yuan Syn	Resource Biotechnology
2012	Ho Soo Ying	Plant Resource Science & Management

Sarawak Timber Association (STA) Award

The Sarawak Timber Association (STA) Award is the academic awards given by STA to the best students and students with the best final year project for the Plant Resource Science & Management Programme. The award was first introduced in the 9th UNIMAS Convocation on 13th-14th August 2005.

Year	Best Graduating Student	Best Final Year Project (Related to Forestry or Timber Industry)
2005	Malcolm Boxey Jilimin	Hafizah Abd Razak
2006	Linna Chieng Mee Ngiik	Diana Lim Siok Ley
2007	Chai Kwan Lin	Kho Swee Ling Farawahida Abu Zaharin
2008	Jocelyn Jonip	Nur Kusaira Khairul Ikram
2010	Liew Cai Foon	Zul Helmey Mohd Sabdin
2011	Voon Siaw Hui	Wong How Chu
2012	Ho Soo Ying	Mugunthan A/L Perumal

Vice-Chancellor's Research Fellowship (Zamalah) Award

The Vice-Chancellor's Research Fellowship Award was first introduced in the 9th UNIMAS Convocation on 13th-14th August 2005.

Year	Name	Programme
2006	Irene Foo Ping Ping	Resource Chemistry
	Aishah Abdul Aziz	Resource Chemistry
	Siti Muhaini Haris Fadzillah	Resource Chemistry
	Hung Tze Mau	Aquatic Resource Science & Management
	Pearlycia Brooke	Resource Biotechnology
2007	Chua Suk Ngo	Resource Biotechnology
	Diomira George Gelian	Aquatic Resource Science & Management
2008	Nur Khairun Nisa bt Mohd Zallehuddin	Resource Chemistry
	Nur Aida Bt Md Tamrin	Animal Resource Science & Management
	Jasmina bt Majit	Aquatic Resource Science & Management
2009	Liyana Ismail	Resource Biotechnology
	Nikson Chong Fatt Ming	Resource Biotechnology
2010	Komathi A/P Balasupramaniam	Resource Biotechnology
	Dayang Shahreeny Abang Mustafa	Resource Biotechnology
	Ahmad Syafiq Ahmad Nasir	Aquatic Resource Science & Management
2011	Nursyuhaida bt Md Shahid	Aquatic Resource Science & Management
	Ho Licia	Animal Resource Science & Management
	Siti Ratna bt Mustafa	Resource Biotechnology
2012	Mugunthan A/L Perumal	Plant Resource Science & Management

AQUATIC SCIENCE BOOKS WRITING WORKSHOP

A workshop on writing aquatic science books in Bahasa Malaysia was jointly-organized by Faculty of Resource Science and Technology UNIMAS (Department of Aquatic Science as the secretariat) and Dewan Bahasa dan Pustaka (DBP) Kuala Lumpur on 29th July 2013 A total of 26 participants attended this workshop representing UNIMAS, Sea Party Technology Ptd Ltd (R&D Centre), Fisheries Research Institute Bintawa, Inland Fisheries Department of Agriculture Sarawak and Sarawak Forestry Corporation Bhd.

This workshop introduced participants to opportunities of becoming authors for books published by DBP. It also touched on intellectual property rights, guidelines for preparation of proposal (book titles and contents) as well as tips for full manuscript preparation and submission. In addition, DBP editors discussed on writing techniques for two types of books (i) scientific books and (ii) general books for the public reading pleasures. During the afternoon session, informal discussion on possible book titles and chapters had been carried out. It is likely that future books by participants will covers local subjects of *ambal, ikan empurau, ikan terubok* and marine harmful alga bloom ("fenomena laut merah"). Follow up workshop (more advanced and focused) will be organized at the end of 2013, to help the highly-motivated- budding authors in aquatic science field as well as to solve some technical problems (if there is any) in manuscript preparation process.

-Ruhana Hassan & Samsur Mohamad

From Left: DBP Chief Editor Mdm Nurul Julia Alani Henry, DBP Editor Mdm Noreena Zolkeplee, secretariat Dr Ruhana Hassan & DBP expert panel in Aquatic Science Dr Samsur Mohamad

Consultation with DBP editors on proposal (title and contents), developing aquatic science book full manuscript and possible images for book cover

Active participation by listening and note taking dominated types of activities during the workshop. A relaxed ambience also fostered useful discussions among participants and editors.

Sustainable Aquaculture Workshop : Collaborative Platform for Sustainable Aquaculture – Southeast Asia International Join Research and Training Programme

Taiwan is a small island with very limited natural resources and frequently experience natural disaster such as typhoon. However, Taiwanese are among the most productive aquaculturists in the world. Hard work and high motivation, continuous knowledge transfer culture between generations of farmers, readily available basic infrastructure and advanced technology and innovation are among the main ingredients for Taiwan success story in aquaculture. In order to share Taiwan experience and knowledge with neighbouring countries, a workshop was organized by National Taiwan Ocean University (NTOU) and National Science Council (NSC) Taiwan, from 20th to 28th August 2013 at NTOU, Keelung, Taiwan.

Participants from nine countries attending the Sustainable Aquaculture Workshop held at National Taiwan Ocean University visiting Jy Lin Trading Co. Ltd., Taiwan

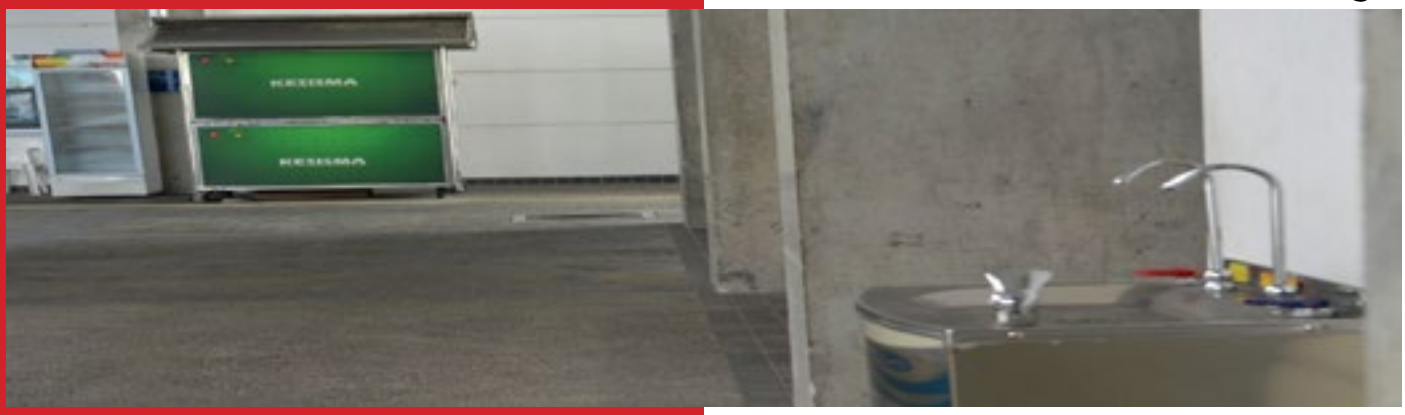
Approximately 30 participants from nine countries attended this seven-day workshop aiming to share knowledge, exchange ideas and networking for future collaboration. This workshop was divided into three parts namely (i) lectures by aquaculture experts (ii) professional tours to commercial aquaculture areas and research centres and (iii) country reports and forum. Lectures were focused on updates of various aspects related to modern aquaculture industries including application of biotechnology, aquafeed, fish and shellfish diseases, fish sensory biology, food safety, management of resources and marketing strategies. Professional tours involved educational visit to the private companies and government agencies including: (i) Merit Ocean Biotech Inc., a grouper nursery for virus free fingerlings, (ii) grouper cultivation in farm of Long Diann Marine Biotechnology Co. Ltd., (iii) ornamental fish industry including transgenic pink angelfish and other neon-coloured fish at Jy Lin Trading Co Ltd., (iv) Tilapia cultures at Taiwan Tilapia and Unisexual Tilapia Breeder Farm, (v) research and development of tiger prawn, grouper, yellow fin tuna and other fishes at Tung Kang Biotechnology Research Centre, (vi) Fisheries Research Institute Laboratories at Keelung, and (vii) laboratory facilities and fish nursery belonging to NTOU. Representatives from Cambodia, Ecuador, India, Indonesia, Mynmar, Malaysia, the Philippines, Thailand and Vietnam presented reports covering aquaculture practices and other matters related to aquaculture industry in each country. In the forum, discussions were focused on achievement and the way forward in sustainable aquaculture for the Southeast Asian countries. In addition, potential topics for future workshop were also discussed.

Aquatic Science Department students Clare Tang (left) and Emmy Goh (right) pursuing their graduate study at the Department of Aquaculture, NTOU, Taiwan

We would like to thank NTOU for their kind invitation and to NSC Taiwan for their generous sponsorship. We are also grateful to UNIMAS for giving us permission to attend this workshop. A lot of knowledge and experience related to aquaculture were gained during this workshop and a new networking with other higher learning institutions, research centres and private companies which enhance our international linkages and university-industry partnership has been established.

- Ruhana Hassan & Lee Nyanti

HOW SAFE IS THE WATER FROM Water Cooler?



Water cooler dispenser is common among UNIMAS community as drinking water supply. It is convenience and provides easy access to drinkable water. It is a known fact that only few of us drink sufficient amount of water to remain healthy and hydrated. The water cooler is seen to encourage drinking yet it should be done safely and maintained consistently to avoid any potential health risk to the employees and students in UNIMAS. If the maintenance is not done properly, the safety of the water is very much in question. As a water cooler users, have you ever wondered how safe is the water from water cooler dispenser in UNIMAS? Preferably, drinking water must not contain any harmful microorganism. The presence of indicator bacteria (eg. *E. coli* and *Salmonella* spp.) is generally a key in assessing potential public health risks in drinking water quality regulations and guidelines in many countries. A study was carried out to evaluate the microbial water quality of public drinking water from water coolers available in UNIMAS (CTF1 and CTF2) whether it meets the standard guidelines by World Health Organization (WHO). As a result of the study, it is a relief to know that the water from the water coolers in UNIMAS is SAFE TO CONSUME. The number of bacterial count over the study period does not exceed the value given by the standard guideline. Interestingly, the bacterial count is slightly higher when the water sample was taken during semester break. This might be due to excessive bacterial growth when the water was stored for more than a week as the water cooler has an opened faucet that exposed the water to contaminant. In addition, *E. coli* which is a common bacteria found in human intestine was also isolated from the water sample collected during semester break. Although that is the case, the bacterial count is still at permissible level and there was no pathogenic *E. coli* isolated from the water samples. Therefore, the water from the water coolers in UNIMAS particularly in CTF1 and CTF2 is safe for human consumption. However, it is a Good Practice to rinse the faucet thoroughly for 1 to 2 times and allow the water to run for 15-30 seconds before using it for drinking to avoid any potential risk. With this, it is hoped that this short study will bring peace of mind among UNIMAS water cooler users.

- **Fazia Mohamad Sinang & Lesley Maurice Bilung.**

A sweet tale from hampas sagu

Hydrolysis of sago starch to produce sago sugar

Sago sugar crystals, obtained from oven drying of concentrated sugar solution

All of us, regardless of age and culture upbringing, love anything sweet - candies, ice lollies, chocolates, fizzy drinks and dozens more. They come in different shapes, sizes, colours and flavours, but the most important thing is, it is sweet and yummy. A lot has been written about the good and the bad of sugar, but it is something that we crave and need to be devoured from time to time. Sugar (sucrose) is mostly extracted from sugarcane, a raw material of which over 90% (more than 1 million tons) is imported into Malaysia each year. Our group at FRST UNIMAS has perfected the method of producing sugar (glucose) from sago starch, and currently studying on the best way to process sago hampas into sugar. A ton of sugar cane can only yield about 100kg of sucrose, but the same amount of sago starch can generate a ton of glucose. Since glucose is about half as sweet as sucrose, that would be equivalent to 500kg of sucrose – much higher than from sugar cane. This makes exporting of sago sugar highly profitable than just selling sago starch. Hampas sagu or sago hampas is the solid waste produces from starch extraction, and disposed directly into our rivers. Presently we can produce between 600-700kg glucose from a ton of sago hampas.. now that is a better way of generating income while concomitantly saving the environment. So, next time you are munching your dough nut which will be richly coated with sago sugar, do not feel guilty, for you are actually saving the environment as well.

- **Kopli Bujang, Cirilo NH, Dayang Salwani AA, Rubena MK & Nur Jannah**

tempting sweeties!!

CHEMISTS ACTIVITIES

Instrumentation training workshop

On 27-29th August 2013, instrumentation training workshop on Ultra-Violet Visible (UV-Vis) Spectrophotometer and Atomic Absorption Spectroscopy (AAS) was held at the Faculty of Resource Science and Technology (FRST), UNIMAS. The workshop was jointly organized by Department of Chemistry, FRST and Centre for Technology Transfer and Consultancy (CTTC), UNIMAS.

The workshop attracted a total of 18 participants from various government agencies, industries, research institutes, private university, as well as Institute of Biodiversity and Environmental Conservation (IBEC) and Faculty of Medicine and Health Sciences of UNIMAS. The participants were exposed to theoretical concept and operation demos (with hands on practices) of UV-Vis and AAS, sample pre-treatment and preparation, techniques for data processing, analysis and interpretation using statistical software (SPSS).

- Sim Siong Fong

Group photo session

UV-Vis Spectrophotometer demonstration

Lodge International School visit to FRST

Research activities

CHEMISTS @ WORK

At the Department of Chemistry, we have been actively involved in supporting the teaching and learning of chemistry at the school level. We have been consistently working with the schools i.e., Maktab Rendah Sains Mara (MRSM) and Sekolah Menengah Batu Lintang (SMBL), supervising students in their research project for science competition. We are passionate in inculcating interest and awareness of students in chemistry to promote the development of chemistry professions. On 5 September 2013, we worked together with Institut Kimia Malaysia (IKM) in organizing Karnival Kimia Malaysia (K2M) at Kolej Abdillah that attracted 350 students from 24 schools. Besides, we are always delighted with the visit from schools. In the beginning of this year, there were 28 A-level students from Lodge International School.Besides, we are always delighted with the visit from schools. In the beginning of this year, there were 28 A-level students from Lodge International School participated in a one-day workshop learning the basic of four instrumentation techniques.

Apart from supporting school activities, our department members are also determined in pursuing excellence in research. Six projects have been presented at the R&D Expo on 20-21 Mar 2013 in Unimas that bagged 3 gold, 3 silver and 1 bronze medals. The members are in addition enormously patient and perseverant in research funding application where 4 FRGS and 3 ERGS grants are secured with a total of more than RM700,000 so far. On top of the commitment to advance in research, we are enthusiastic at sharing with the public our research achievement. Assoc. Prof. Dr. Zainab Ngaini has been invited to be interviewed by Simfoni Alam TV2 for her amazing work on sago.

- **Sim Siong Fong**

Projects with schools

Karnival Kimia Malaysia (K2M)

Postgraduate students having fun in K2M

Our postgraduate student interacting with school students in K2M

UNIMAS-CHONNAM NATIONAL UNIVERSITY STUDENT EXCHANGE PROGRAMME

Siti Rahimah bt. Jumaat and Aimi Zafirah bt. Adam were on a 4 month exchange student program in Chonnam National University, Gwangju, Korea, from March until June 2013 during the International Spring Session. Besides taking elective courses such as Introduction to Ecology, Korean Reading and Korean Listening and Speaking they also participated in many extra-curricular activities such as field trip to Hanok Village, Bandi Festival (culture and the food) and baseball games. While in Korea each exchange student has her own Korean buddy that assisted them in many things related to their study and their everyday life. They have made many great Korean friends and this student exchange programme was an enjoyable experience.

- Aida Shafreena Ahmad Puad

Plant with largest and bizarre inflorescence!

Very often one will shake his head whenever a simple question is being asked, “Which plant has the LARGEST INFLORESCENCE in the world?”. But one will obviously be able to answer the question, “Which is the biggest flower of the world?” “*The Rafflesia*” or locally known as “*bunga pakma*”!

Amazingly, this interesting and lesser known plant of the genus *Amorphorphallus* of the family Araceae occurs in our tropical rainforest and receives less attention. Worldwide there are over 200 species recorded and distributed in the Africa, Asia and islands of the tropical Pacific Ocean. The name *Amorphorphallus* was derived from the Greek word amorphous, ‘deformed or shapeless’ and ‘phallus’, means penis. One of the species in this genus, *Amorphorphallus* titanium (also known as Titan Arum, corpse flower and bunga bangkai) holds the world record of bearing the largest inflorescence. It was first discovered by an Italian botanist Odoardo Beccari in Sumatra in 1878. He sent the seeds to Royal Botanic Gardens in Kew, England and it first bloomed in cultivation in 1889. Now, this sensational species is cultivated in several botanical gardens in the USA, Netherlands, Australia and Kebun Raya, Bogor Indonesia. Whenever it blooms, it becomes highlight of the media and receives overwhelming attention from the public.

Amorphorphallus brachyphyllus

Amorphorphallus hewettii

The giant inflorescence may reach up to 3 m tall and 1.2 m across and the corm (underground storage organ) may weigh up to 90 kg. It has unique fleshy beautiful frilled maroon spathe enclosing the erect spadix that bears the female and male flowers. When the inflorescence is in full bloom, it emits distinct odours resembling that of a rotten fish, and disseminates it to the surrounding environment attracting carrion flies as a pollinator agent.

Some tubers of *Amorphorphallus* are edible. For example, the tuber of A. *paeoniifolius* is edible, and other vegetative parts are eaten as green vegetables. The tuber has several medicinal values used by the Indians, such as in the treatment of asthma, abdominal pain, dysentery, enlargement of spleen, piles and rheumatic swellings. *Indigenous Amorphorphallus* species found locally are of great potential to become one of the important exhibits for eco-tourism in the natural habitats and in protected areas.

- Cheksum Tawan

Amorphorphallus borneensis

A BRIEF OVERVIEW OF MALAYSIAN BATS

Bats are critical species to the ecosystem in several ways because of their adaptations that are considered advantageous.Bats ensure the survival of fruit trees and forest plants as they serve as insect control agents (biological pest control), pollinators of flowers and dispersers of seeds (Figure 1. Recently, coffee beans fed by the bats have been commercialized (e.g. Costa Rica, Sumatra) as a unique coffee product (Figure 1). Plant family which exhibits high bat dependency characteristics includes the Leguminosae, Myrtaceae, Sonneratiaceae, Sapotaceae, Bignoneaceae and Bombacaceae. This includes some of the commercial fruits including durian, banana and petai. Besides providing free ecological services bats are also economically important as a predator to control agricultural pest, and their guanos are still being used as a fertilizer in developing countries (Figure 1). Despite their role in maintaining the ecosystem, the diversity and survival of many of these mammalian species are threatened and declining over the pass 50-100 years due to habitat destruction and modification.

Figure 2:
Nine bat families that occur within Malaysia distribution. Photos by Isham Azhar.

Figure 1:
Bats contribution to human and the ecosysteam. Photos from Isham Azhar, © 2013 Sea Island Coffee Ltd (online) and garden city (online).

Malaysian rainforest hold at least 128 species of bats which account to 40% of overall Malaysian mammals and 10% of the world's bat fauna. There are at least 20 species of old-world fruit bats, belonging to the family Pteropodidae, and 108 species of insectivorous bats from the following seven families: Rhinolophidae (19 spp.), Hipposideridae (21 spp.), Megadermatidae (2 spp.), Emballonuridae (5 spp.), Nycteridae (1 sp.), Molossidae (4 spp.), Miniopteridae (6 spp.) and Verspertilionidae (50 spp.) that occur within Malaysian political boundaries (Figure 2). Are these lists complete and no more bat species remain to be discovered? As most of the species documented in Southeast Asia were described based on morphology, inaccurate species identification especially among morphologically cryptic species remain possible. Our bat research group in the Department of Zoology, FRST UNIMAS, are working in documenting the species diversity of this mammalian group by incorporating ecology, behaviour, morphology and genetics to properly assess the species diversity of this group in Malaysia.

- Faisal Ali Anwarali Khan & Isham Azhar

The Conservation of Carnivores in Sarawak: Research Priorities

Despite the fact that Borneo contains high small carnivore species richness and endemism, there lacks sufficient information on these species for formulating effective conservation plans. Most of the available information on some of these rare species is from historical records and from incidental sightings. With increasing use of camera traps in Borneo, many new distributional records are being obtained for many secretive carnivore species. However only a handful of these researches are concentrated in Sarawak. Small carnivores play important roles in the food chain by regulation of prey population and also by performing important task of dispersing tropical seeds. With the current rate of forest degeneration and deforestation the removal of these species may have a top-down cascading effect which in turn may reduce the productivity of the forest ecosystem in general.

Most of the remaining non protected forests in Sarawak are logged or will be logged eventually. Therefore, the survival of Sarawakian carnivores depends heavily on protected areas such as National Parks and Wildlife sanctuaries and the relevant department's ability to implement the documented strategies. Some of the protected areas in Sarawak were established to conserve specific animal and plant communities using the umbrella species concept for species conservation. For example, Batang Ai National Park for orangutan conservation, Kubah National Park for its high palm species diversity and Gunung Gading National Park for Rafflesia sp., while an ostensibly appealing approach, this method of conserving biodiversity may not be relevant to current land use pressures in Sarawak, and may not maximise the number species in a protected area. However some of these carnivore species can potentially be used as flagship species to promote conservation of habitat. Despite the fact that Sarawak is a part of Malaysia; it is governed by different legislation and land use policy. Therefore different conservation strategies and approach are desperately needed in Sarawak.

Lack of funds and resources have always limited exploratory research in Malaysia especially Sarawak. Such

Common palm civet (***Paradoxurus hermaphroditus***) frequently observed in modified landscapes. (Photo: Mohd-Azlan)

A Malayan civet (***Viverra tangalunga***) camera trapped in Lanjak Entimau Wildlife Sanctuary (Photo: Mohd-Azlan)

funds are urgently needed to understand the elasticity of carnivores in Borneo to habitat disturbances. It is difficult to produce conservation action plan if there is a lack of basic information such as the species distribution. Even though in the past, intensive camera trapping surveys were conducted in several protected areas in Sarawak such as Lanjak Entimau Wildlife Sanctuary, Lambir Hills National Park, Kubah National Park, only a handful of endangered carnivores have been recorded. Therefore information on the distribution of endangered carnivores (e.g. otter civet, Bornean bay cat, flat-headed cat) is desperately needed for the future conservation strategies and planning. This also includes the search for the least known endemic Bornean carnivores such as Hose's civet and Sunda clouded leopard. This information can be used to formulate a model community to estimate minimum area requirement for conservation. Examining the spatial and temporal variation in carnivore community composition and structure through quantifying the influence of environmental factors is vital for understanding the dynamics of carnivore species assemblage in forest patches.

- **Mohd Azlan Jayasilan b Abd Gulam Azad**

The rare and endangered Bornean bay cat (***Padofelis badia***) was held captive by a local collector until it was released much later in 2004. (Photo: Mohd-Azlan & Jim Sanderson)

REGISTRATION WEEK.....

Faculty Welcoming Day in conjunction with Majlis Aluan Pelajar 2013/2014

Faculty of Resource Science and Technology (FRST) welcomed 585 students during Meet With The Faculty Day in conjunction with Majlis Aluan Pelajar 2013/2014 session held on 4 September 2013 at Zamrud Hall, DeTAR Putra UNIMAS. Among the guests were Assoc Prof Dr Mohd Hasnain Md Hussain, the Dean of Faculty of Resource Science and Technology, Assoc Prof Dr Hairul Azman, the Deputy Dean (Research and Postgraduate), Dr Samsur Mohamad, the Deputy Dean (Undergraduates and Student Development), Head of Departments, Programme Coordinators, lecturers, tutors and non-academic staff.

A total of 2 international students from Indonesia and Korea were enrolled as students at FRST. One of them, Jo Da Yeon is an exchange student from Chonnam National University, Korea.

The launching ceremony was done by the Dean of Faculty, before the students was divided into groups according to their respective programmes for briefing.

Programme & Total of Students Registered:

1) Resource Biotechnology - 147
2) Resource Chemistry - 157
3) Aquatic Resource Science & Management - 100
4) Plant Resource Science & Management - 85
5) Animal Resource Science & Management – 96

-Malaysia Raya 2013-

Majlis Sambutan Aidilfitri Malaysia Raya UNIMAS 2013 organized by UNIMAS was held on 28th August 2013 located at Banquet Hall, DeTAR Putra, UNIMAS. Nineteen food stalls under the '*Malaysia Raya*' theme served food to all visitors. The annual event organized by the university gave visitors a chance to try the food from around the country.

Among the guests were UNIMAS Vice-Chancellor, Prof Dato' Dr Mohamad Kadim Suaidi, Chairman of the UNIMAS Board of Directors Datu Dr Hatta Solhi, Deputy Vice-Chancellors. FRST and IBEC were of great help in making the ceremony successful by opening a food stall based on the concept of Sarawak native. Interesting traditional Sarawak cuisines such as *laksa Sarawak*, *kek lapis, ayam pansoh, ikan terubok masin,* and other dishes were served to the guests. In view of the creativity, skill and cooperation, FRST won the third place for the Best Food Stall Competition.

MAGU

UNIMAS Excellent Award Ceremony 2013

A total of 20 staff of FRST, had a proud moment when their outstanding services were recognized in UNIMAS Excellent Award Ceremony 2013 held on 18th September 2013 at Arena Gemilang, DeTAR PUTRA, UNIMAS. Out of the 20, 12 received Excellent Service Award, 7 received Loyal Service Award and 1 (Amira Satirawaty Mohamed Pauzan) received Academic Award for Best Course Portfolio. She was recognised for producing a complete portfolio for STK1094 (Analytical Chemistry 1).

	Excellent Service Award
1	Prof Dr Lee Nyanti @ Janti Ak Chukong
2	Dr Mohd Azlan Jayasilan bin Abdul Gulam Azad
3	Dr Chin Suk Fun
4	Dr Azham Zulkharnain
5	Azaha Omar
6	Azhar Bujang Masli
7	Mohd Rizan Abdullah @ Rundang
8	Norhasyikin Usop
9	Nur Syamsiah Jeman
10	Safarina Johnny
11	Shafri Semawi
12	Shahrin Bolhassan

	Loyal Service Award
1	Assoc Prof Dr Zainab Ngaini
2	Abas Said
3	Azis Ajim
4	Dyg Fatimawati binti Awg Alli
5	Lamri Salam
6	Limjatai Kadin ak Patrick
7	Zulkifli Ahmad

UNIMAS Staff Athletic Championships 2013

UNIMAS organized UNIMAS Staff Athletic Championships on 16th -17th May 2013 at the UNIMAS Stadium. FRST / IBEC have also sent athletes in almost all the events for this tournament. Overall, FRST / IBEC won 6 gold, 3 silver and 6 bronze medals. FRST / IBEC cheerleading team has given their full support throughout the tournament and they have won the Best Cheerleading Team Award.

Medal	Winners	Events	Categories
Gold	Assoc Prof Dr Othman Bojo	Javelin Throw	Master
	Assoc Prof Dr Othman Bojo	Discus Throw	Master
	Saji Kentol	Shot Put	Master
	Assoc Prof Dr Cirilo Nolasco Hipolito	500 metre	Master
	Dr Samuel Lihan	Javelin Throw	Veteran
	Siti Hajar Abu Bakar	400 metre	Senior
Silver	Assoc Prof Dr Cirilo Nolasco Hipolito	1500 metre	Master
	Assoc Prof Dr Cirilo Nolasco Hipolito	800 metre	Master
	Dahlan Rambli	100 metre	Senior
Bronze	Prof Dr Hamsawi Sani	100 metre	Master
	Dr Mohd Azlan Jayasilan	200 metre	Veteran
	Azaha Omar	100 metre	Veteran
	Hailman Bawi	100 metre	Super Senior
	Assoc Prof Dr Othman Bojo Azaha Omar Hailman Bawi Syaifudin Bojeng	4 x 100 metre	Super Senior
	Dahlan Rambli Mohd Norazlan Bujang Belly Sukaimi Adni Muhd Najib Fardos Azaha Omar Hailman Bawi	4 x 100 metre	Super Senior
	Dahlan Rambli	100 metre	Senior

Photo By *Kelab Olahraga Staf UNIMAS*

STAFF NEWS

PROMOTIONS

Assoc Prof Dr Lim Po Teen (DS54)
- 1 August 2013

Assoc Prof Dr Ramlah Zainuddin (DS54)
- 1 August 2013

APPOINTMENT TO PERMANENT POSITIONS

Dr Mohd Hasnul Bolhassan (DS51)
- 28 March 2013

Dr Zinnirah Shabdin (DS51)
- 8 May 2013

Ratnawati Hazali (DS45)
- 26 March 2013

APPOINTMENT AS PROGRAMME COORDINATORS

Dr Mickey Vincent
(Resource Biotechnology Programme)
8 August 2013 - 7 August 2015

Amira Satirawaty Mohd Pauzan
(Resource Chemistry Programme)
1 August 2013 - 31 July 2014

NEWLY WEDS

Dyg Norafizan
Bt Awg Chee

Norafila Humrawali

Mohd Nasarudin Harith
@ Abdul Nasir

STAFF WITH NEW BORNS

Dr Samsur Mohamad
Dr Aazani Mujahid
Dr Zinnirah Shabdin
Emelia Tambi
Affizzah Morshidi & Shahrin Bolhassan
Benedict Samling

VICE-CHANCELLOR MEETING WITH THE FACULTY

- 25 JULY 2013 -

PANEL VISIT – MALAYSIAN QUALIFICATION ACCREDITATION (MQA)

- 18 SEPTEMBER 2013 -

5S WORK TRIP TO FACULTY OF SCIENCE

UNIVERSITI PUTRA MALAYSIA AND SARAWAK BIODIVERSITY CENTRE

- 5 JULY 2013 -



STRATEGIC PLANNING 2013

- ONE HOTEL SANTUBONG - 16 & 17 MARCH 2013 -






FAMILY DAY 2013

- DAMAI CENTRAL - 16 & 17 MARCH 2013 -








16th CONVOCATION OF UNIMAS
- DeTAR PUTRA- 13 OCTOBER 2012 -

"A college education is not a quantitative body of memorized knowledge salted away in a card file. It is a taste for knowledge, a taste for philosophy, if you will; a capacity to explore, to question, to perceive relationships, between fields of knowledge and experience."

- By Alfred Whitney Griswold

https://twitter.com/FrstUNIMAS

Faculty of Resource Science & Technology
Universiti Malaysia Sarawak (UNIMAS)
94300 Kota Samarahan Sarawak
Tel : 082-583136
Fax : 082-583160
Website: https://www.frst.unimas.my

https://www.facebook.com/Frst Unimas